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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/527,066

03/09/2005

Yoshiji Okada

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EXAMINER

VETERE, ROBERT A

ART UNIT

PAPER NUMBER

1792

NOTIFICATION DATE

DELIVERY MODE

02/22/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/527,066 | Applicant(s) OKADA, YOSHIJI | |
| | Examiner ROBERT VETERE | Art Unit 1792 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5 and 10-15 is/are rejected.
- 7) ☒ Claim(s) 2-3,6-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1792

DETAILED ACTION

Examiner's Comments

Arguments presented in response to a non-final rejection were received and entered on 12/10/2008.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-5, and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolla et al. (Chromatographia, 23, 7, pp. 465-472) in light of Gordon et al. (US 4,507,411).

Claims 1, 4-5, 10-11 and 12-15 (with respect to their dependencies from 1, 4 and 5): Kolla teaches a method of producing a cation exchange film for use in chromatography (Abst.) comprising the steps of coating a silica particle with a diameter of 5 μm with poly(butadiene-maleic acid) ("PBDMA"), placing the coated particles in a solvent containing dicumylperoxide and crosslinking the particles in the solution by reacting the particles with the incorporated peroxide (p. 466, Col. 1). Kolla, however, teaches that the coated particles are extracted from the solvent prior to cross-linking. Gordon, however, teaches that it is known in the art to cross-link maleinised polybutadiene in the presence of alcohol (1:10-13) and that the particles are placed in toluene (claimed "solvent") (2:34-49). The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have cross-linked the PBDMA of Kolla in a solvent, as taught by Gordon with the predictable expectation of success.

Art Unit: 1792

Allowable Subject Matter

3. Claims 2-3, and 6-15 (with respect to their dependence from claims 2-3) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: Kolla and Gordon fail to fairly teach or suggest that the polymer is reacted with (or that the solvent contains) an alpha-beta-unsaturated dibasic acid derivative. The two closest prior art references also fail to teach this limitation. Yang et al. (Talanta 55, pp. 1091-96) teaches a method of forming a cation exchanger where silica particles are coated with MVDS and reacted with maleic anhydride to form a polymeric coating, but fails to teach that the silica particles are first coated with a polymer having a double bond. Tokuda et al. (JP 05-096184) teaches an improvement over the Kolla method, but only teaches that dicarboxylic acid is added to the film after the film has been formed and placed in the chromatographic apparatus and does not teach that any dibasic acid derivative is present in the cross-linking solvent. None of these references, individually or taken as a whole, fairly teach or suggest the deficiencies of Kolla.

Response to Arguments

5. Applicant's arguments filed 12/10/2009 have been fully considered but they are not persuasive. Applicant first argues that Gordon fails to teach the use of an alcohol as a solvent. This is not persuasive. Gordon explains that toluene is used as the solvent at, e.g., 2:34-49. The claims do not require alcohol to be used as the solvent.

Applicant also argues that toluene is not a suitable solvent because it dissolves the maleinised polybutadiene while the claims limit the solvent to one which does not dissolve the polymer. This is not persuasive. Gordon teaches that the polymer can be dispersed in the solvent (2:45-49) and does not teach that the toluene dissolves the polymer. Applicant has failed to provide any evidence that the toluene will dissolve the polymer. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965).

Art Unit: 1792

Applicant next argues that applicants claim a copolymer while maleinised polybutadiene is a grafted polymer. This is not persuasive. Gordon explains that maleinised polybutadiene can be formed by copolymerization (2:13-19).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT VETERE whose telephone number is (571)270-1864. The examiner can normally be reached on Mon-Fri 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/527,066

Page 5

Art Unit: 1792

/Robert Vetere/
Examiner, Art Unit 1792

/Michael Cleveland/

Supervisory Patent Examiner, Art Unit 1792